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ABSTRACT

This report presents results of a study undertaken to develop and test a procedure for assessing secondary vocational education needs. Chapter I is a brief introduction. Chapter II describes the employment and occupational growth patterns of Gallatin County, Montana. Together with the narrative, 10 tables illustrate basic employment growth, employment growth by industry, changes in occupational growth, earnings by occupation and by industry, female and male occupational distribution, and occupational projections. Chapter III describes the methodology used to conduct this study. First, discussion focuses on an informal survey in three target schools to gather information on graduates and school leavers in school year 1982-83 and thus to provide a beginning framework for evaluating the general performance of secondary vocational education programs. Two tables present summary results showing employment/school status of former vocational education students and status by program area. Second, results are presented of a statewide followup survey for both secondary and postsecondary vocational education programs for comparison with the Gallatin County survey. Three tables illustrate results. Based on the information gathered, recommendations discussed in chapter IV concern the following needs: additional data, continuation of student tracking, and career placement information. (Surveys are appended.) (YLB)

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ECO NORTHWEST, Ltd.
Consultants in Economics, Planning, and Resource Management
Eugene • Portland • Helena • Boise

VOCATIONAL NEEDS ASSESSMENT: A PLANNING PROCESS

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June, 1984

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I. INTRODUCTION

ECO Northwest, Ltd. (ECO) was contracted by the Office of Public Instruction, Department of Vocational Education Services (OPI) to develop and test a procedure for assessing secondary vocational education needs. The objectives of this analysis were to:

1) Provide relevant labor market information to instructors and administrators to determine the demand for labor by occupation.

2) Develop a mechanism for determining if the current vocational education curriculum is consistent with the demand for labor.

3) Determine a procedure for analyzing the success of current programs (i.e., whether specific classes assist students in finding meaningful employment).

4) Field test the methodology in three school systems.

5) Recommend a specific course of action to improve the training curriculum by better serving student needs.

This report describes the employment and occupational growth patterns of Gallatin County as well as the methods used to conduct this study. Based on the information gathered in this study, recommendations are presented in the last chapter of this report.

II. EMPLOYMENT AND OCCUPATIONAL GROWTH

A. Employment

1. Basic Employment Growth

The demand for labor in any area is almost entirely a function of changes in the basic employment and income sectors. Basic sectors are those industrial sectors which bring money into the local economy generally through exports. The products of the agricultural, mining, and manufacturing sectors of an economy are exported to other regions and bring revenue into the local areas. Similarly, expenditures by out-of-county residents for recreation, tourism, and travel also generate money into the local economy. Moreover, out-of-county residents shopping in Bozeman help stimulate the local area through such expenditures.

Changes in growth in these basic or income-producing sectors have additional or secondary impacts on the local economy. This is commonly known as the multiplier effect. Simply stated, when the basic sectors grow and new money is injected into the local economy, there is a corresponding increase in employment and income in those nonbasic sectors which draw their livelihood from the basic sectors. The nonbasic sectors usually include government, retail and wholesale trade, and services. As a general rule in the

Bozeman area, one new basic job will generate between 0.5 and 1.5 new nonbasic jobs, depending upon the income level of the basic wage earner. The multiplier for a low wage sector such as tourism is low, while for many manufacturing jobs, the multiplier is high.

The basic/nonbasic distinction becomes very important when analyzing local growth characteristics. During the 1970s, Gallatin County employment and population increased by 51 and 32 percent, respectively, versus statewide increases of 30 and 13 percent for employment and population. Although some of Bozeman's population growth (approximately 20 percent) was associated with increased enrollment at Montana State University, most of the increase was the result of expansion in two basic sectors--tourism and durable manufacturing.

Table 1 illustrates that some local basic sectors such as tourism were growing very rapidly, while other sectors primarily agriculture, were experiencing declines. In an overall sense, however, nearly 11 percent of all the basic growth in Montana took place in Gallatin County. Table 1 also provides a comparison of growth sources for Montana. The reader will note that tourism was an important growth source statewide, but not nearly as important as in Gallatin County. In addition, agriculture declined more at the statewide level than it did at the local level. Manufacturing expansion, however, was more important as a growth source statewide

TABLE 1

BASIC GROWTH SOURCES AS
PERCENT OF TOTAL INCOME AND EMPLOYMENT GROWTH (1970-1980)

Basic Sector	Gallatin County	Montana (Sum of Counties)
Agriculture	-11%	-40%
Mining	4%	21%
Construction	18%	12%
Manufacturing	21%	34%
Transportation/Communications Utilities	7%	16%
Trade	14%	14%
Tourism/Travel	35%	23%
Services	10%	15%
Government	-10%	-3%
Other	-2%	7%
TOTALS	100%	100%
Percent of State	11%	n/a
Commodity-Producing Sector	32%	27%
Service-Producing Sector	68%	73%

Source: Economic Consultants Northwest, Montana Alternative Simulation System, prepared for Montana Department of Commerce, 1981.

than it was locally. Furthermore, in both Gallatin County and throughout Montana, the growth in the commodity-producing basic sectors (agriculture, mining, construction, and manufacturing) was much less than in the service sectors. Throughout the nation, the pattern was similar; that is, the service sectors grew much faster than the commodity-producing sectors.

2. Employment Growth by Industry

Table 2 illustrates employment growth patterns for various industrial sectors for Gallatin County and for Montana. With the exception of agriculture, all employment sectors grew much faster in Gallatin County than their statewide counterparts. Most of the growth in both Gallatin County and the state occurred in the service sector (i.e., not in agriculture, construction, manufacturing, and mining). In Gallatin County, the expansion in the service sectors accounted for 94 percent of the total employment increase between 1970 and 1980 versus 97 percent statewide. This rapid increase in the service-producing sector was also experienced at the national level.

Some portion of the service-producing sector is basic to the local economy. Table 1 shows that about 70 percent of the basic economic growth in Gallatin County was associated with the service sector, specifically tourism, retail trade, and services. Table 2, on the other hand, reveals that 94 percent of all employment growth was found in the service

TABLE 2

EMPLOYMENT GROWTH BY INDUSTRY

Basic Sector	Gallatin County				State of Montana			
	1970	1980	% of Change	% of Total Change	1970	1980	% Of Change	% of Total Change
Agriculture	1,371	1,237	-9.8%	-1.9%	39,783	36,485	-8.3%	-3.8%
Non-Farm Proprietors	1,325	2,069	56.2%	10.0%	27,416	40,543	47.9%	15.3%
Construction	488	702	43.9%	2.9%	11,198	14,602	30.4%	4.0%
Manufacturing/Mining	964	1,307	35.6%	4.6%	30,458	33,057	8.5%	3.0%
Transportation/ Utilities	469	793	69.1%	4.4%	17,308	23,093	33.4%	6.7%
Trade	2,117	4,081	92.8%	26.4%	48,611	72,245	48.6%	27.5%
Finance/Insurance/ Real Estate	353	851	141.1%	6.7%	7,870	13,597	72.8%	6.7%

TABLE 2 (Continued)

Basic Sector	Gallatin County				State of Montana			
	1970	1980	% of Change	% of Total Change	1970	1980	% Of Change	% of Total Change
Services	1,916	3,011	57.2%	14.7%	38,733	60,820	57.0%	25.7%
Government	4,029	6,422	59.4%	32.2%	63,167	75,984	20.3%	14.9%
TOTAL	13,032	20,473	57.1%	100.0%	284,544	370,426	30.2%	100.0%

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

sectors. While this information may seem to be inconsistent, it is not since a significant portion of local service growth resulted from nonresidents shopping and recreating in Gallatin County.

3. Changes in Occupational Growth

Table 3 illustrates the occupational composition for a variety of industrial sectors. For example, in the manufacturing sector approximately 9 percent of the employees are managers and about 26 percent are machine operators. Most occupations are not in production work but are service or management related. In agriculture, about 86 of all jobs are in production related occupations, while in public administration approximately 10 percent of all jobs are of a blue collar nature. About 35 percent of all jobs in Montana are in the blue collar or production worker category.

Since most of the employment growth occurred in the service sector, most of the change in occupational demand was found in service related occupations. Tables 4 and 5 provide data on occupational change for Gallatin County and Montana. Not all occupations are shown because many require high skill levels that are not relevant to secondary vocational programs. In Gallatin County, over 80 percent of all the relevant occupational growth occurred in service related occupations. Statewide, nearly all the relevant growth occurred in the service related occupations.

TABLE 3

MONTANA EMPLOYMENT/OCCUPATIONAL MATRIX (1980) AS
PERCENT OF TOTAL EMPLOYMENT BY INDUSTRIAL CATEGORY

Category	Agri-culture	Mining	Constr-uction-	Manufac-turing	Transpor-tation and Utilities	Trade	Finance and Insurance	Business Services	Profes-sional Services	Public Adminis-tration	TOTAL (average)
Managerial	1.5	8.0	6.7	8.9	10.5	11.7	20.4	12.9	8.3	21.1	10.3
Professional	4.1	5.1	2.1	4.1	4.3	1.4	0.7	4.4	43.1	13.1	12.3
Technical	1.0	3.3	1.9	1.5	2.8	0.3	1.0	1.7	5.3	5.3	2.4
Sales	0.5	0.8	0.6	6.3	2.4	33.5	29.2	4.2	0.5	0.8	10.3
Administrative Support	3.6	5.9	5.9	8.3	26.0	10.1	43.0	10.9	16.5	31.6	14.8
Service	2.3	1.6	0.8	2.4	2.6	22.3	3.9	40.0	22.5	18.0	15.1
Agricultural	84.0	0.0	0.0	3.4	0.0	0.0	0.4	0.8	0.2	1.4	9.3
Mechanics	0.8	8.3	3.7	5.1	9.4	5.2	0.2	12.7	0.2	1.9	4.1

TABLE 3 (Continued)

Category	Agri-culture	Mining	Constr-uction-	Manufac-turing	Transpor-tation and Utilities	Trade	Finance and Insurance	Business Services	Profes-sional Services	Public Adminis-tration	TOTAL (average)
Construction	0.3	6.3	50.4	3.8	4.6	1.1	0.2	0.9	0.6	1.3	5.0
Extractive	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Precision Production	0.2	4.6	1.1	10.8	4.5	2.9	0.0	2.2	0.8	0.7	2.4
Machine Operators	0.5	6.1	2.0	25.9	2.5	1.0	0.1	5.8	0.9	0.8	3.4
Transporta-tion	0.6	17.1	12.3	7.8	24.0	3.7	0.3	1.2	0.9	1.4	5.3
Handlers	0.4	8.7	12.4	11.5	6.2	6.9	0.3	2.6	0.4	2.4	4.6

Source: U.S. Department of Commerce, Bureau of the Census.

TABLE 4

PERSONS 16 YEARS AND OVER
EMPLOYED IN RELEVANT OCCUPATIONS,
GALLATIN COUNTY, MONTANA

Occupation	1970	1980	Difference	Percent Change
Administrative Support, including Clerical	1,786	3,359	1,573	88.1
Food Service	761	1,613	852	112.0
Farm Operators and Managers	592	669	77	13.0
Farm Workers and Related Occupations	449	632	183	40.8
Mechanics and Repairers	312	583	271	86.9
Construction Trades	897	942	45	5.0
Construction Laborers	66	178	112	169.7
Sales Occupations	764	1,388	624	81.7
Fabricators, Assemblers, Inspectors, Samplers	202	190	- 12	- 5.9
Precision Production	191	380	189	99.0
Machine Operators and Tenders, excluding Precision	339	416	77	22.7
TOTAL	6,359	10,350	3,991	62.8

Note: Relevant occupations refers to those jobs that are pertinent to this study.

Source: U.S. Bureau of the Census.

TABLE 5

PERSONS 16 YEARS AND OVER
EMPLOYED IN RELEVANT OCCUPATIONS,
STATE OF MONTANA

Occupation	1970	1980	Difference	Percent Change
Administrative Support, including Clerical	35,330	52,884	17,554	49.7
Food Service	13,369	20,903	7,534	56.4
Farm Operators and Managers	18,844	17,856	- 988	- 5.2
Farm Workers and Related Occupations	9,621	11,289	1,668	17.3
Mechanics and Repairers	8,420	13,538	5,118	60.8
Construction Trades	19,450	16,359	-3,091	-15.9
Construction Laborers	2,064	3,009	945	45.8
Sales Occupations	15,535	22,550	7,015	45.2
Fabricators, Assemblers, Inspectors, Samplers	5,884	3,574	-2,310	-39.3
Precision Production	6,479	8,038	1,559	24.1
Machine Operators and Tenders, excluding Precision	8,354	7,640	- 714	- 8.5
TOTAL	143,350	177,640	34,290	23.9

Note: Relevant occupations refers to those jobs that are pertinent to this study.

Source: U.S. Bureau of the Census.

There are several other facts which help to explain changes in occupational demand levels. First, although most of the surge in service related occupational growth was due to expansion in the retail trade, private business services, and governmental sectors, some of the growth may have been the result of changes in the occupational distribution itself. In other words, most jobs and industries have become more advanced, resulting in a shift from blue collar to more technical occupations even within the commodity-producing sectors (e.g., manufacturing, mining, and construction). Second, during the past decade there was a major change in female employment participation. In fact, 56 percent of all new jobs were filled by females during the 1970s. Again, nearly all of these jobs were in the service and trade sectors. Third, during the 1970s, there was a major increase in the number of new workers resulting from the postwar babyboom. During that time period the Montana labor force increased 2.5 times faster than population growth.

4. Other Occupational Characteristics

Tables 6 and 7 illustrate earnings by occupation and by industry. Earnings in service related occupations and industries are considerably lower than for production related occupations or industries. This difference, in part, reflects differences in both skill levels and average hours worked per

TABLE 6

MEAN EARNINGS BY OCCUPATION
(1979)

Occupation	Male	Female
Managerial	$20,575	$ 9,833
Professional	19,381	9,285
Technicians	15,131	6,781
Sales	16,405	5,843
Administrative/Clerical	13,657	7,025
Service	8,179	4,252
Agriculture	10,974	4,520
Mechanics	14,393	11,496
Construction	14,551	6,255
Extractive	18,593	11,874
Precision Production	16,114	6,397
Machine Operators	13,995	5,515
Fabricators	14,262	4,363
Transportation	16,349	6,037
Handlers	9,945	5,568

Source: U.S. Department of Commerce, Bureau of the Census.

TABLE 7

WAGE & SALARY DISBURSEMENTS PER WORKER,
GALLATIN COUNTY, MONTANA (1970-1980)

	Gallatin County			State of Montana		
General Category	1970	1980	% Change	1970	1980	% Change
Farm/Agri. Service, Forestry, Fisheries & Other	$2,160	$ 5,988	177.2	$1,832	$ 6,146	235.5
Construction	$8,494	$16,410	93.2	$9,037	$18,397	103.6
Manufacturing	$6,388	$13,773	115.6	$7,345	$16,991	131.3
Transportation and Public Utilties	$7,701	$16,610	115.7	$8,523	$19,545	129.3
Wholesale/Retail Trade	$4,725	$ 8,853	87.4	$5,081	$10,004	96.9
Finance, Insurance, & Real Estate	$6,173	$11,908	92.9	$6,249	$12,268	96.3
Services	$3,426	$ 8,325	143.0	$3,876	$ 9,087	134.4
Government & Government Enterprises	$5,470	$10,151	85.6	$5,831	$12,087	107.3

Source: 1) Regional Economic Information System, Bureau of Economic Analysis, August, 1983.
2) Economic Consultants Northwest, Helena, Montana.

TABLE 8

MALE/FEMALE OCCUPATION DISTRIBUTION
(NATIONAL DATA - 1981)

Occupation	Male	Female
Professional, Technical	57	43
Managers, Administrators	72	28
Sales Workers	67	33
Clerical	22	78
Craftsmen	94	6
Operatives (Exc. Transport)	61	39
Transport Operatives	95	5
Laborers (Non-Farm)	90	10
Farm Workers	88	12
Service Workers	50	50

Source: U.S. Department of Labor, Bureau of Labor Statistics, September 1982, 2149.

week. That is, most service related jobs are less than full-time jobs, averaging a 30 to 35 hour work week.

Table 8 reflects national data (1981) from the U. S. Department of Labor on male and female occupation distribution. In all occupations listed, males predominate the occupational field, except clerical where the females hold more positions and service related occupations where it is evenly divided between the two sexes.

As previously mentioned, most of the employment growth during the past decade occurred in the service sectors. Additionally, many of these new jobs were filled by new entrants into the labor force, many of which were female. Table 6 illustrates that female workers are paid significantly less than males. This differential probably results from both the number of years on the job and discrimination itself. Younger male workers, however, are paid less than their older counterparts.

B. Occupational Opportunities

1. Occupational Demand

Occupational projections were developed for Gallatin County on the basis of the statewide State Occupational Information Center (SOIC) supply demand model. This model, developed by the Montana Department of Labor and Industry, forecasts new jobs by both industry and occupation. Job growth

TABLE 9

PROJECTED EMPLOYMENT,
GALLATIN COUNTY, MONTANA (1980-1990)

General Category	Employment 1980	Employment 1990	Change	Percent Change
Administrative Support Occupations, including Clerical	2,202	3,592	1,390	63.1
Financial Records Processing	676	1,096	420	62.1
Food Service	1,715	2,845	1,130	65.9
Farm Operators and Managers	669	N/A	N/A	N/A
Farm Workers and Related Occupations	681	N/A	N/A	N/A
Mechanics and Repairers	597	827	230	38.5
Construction Trades	956	1,446	490	51.3
Construction Laborers	214	334	120	56.1
Sales Occupations, excluding Supervisors and Proprietors	1,912	3,072	1,160	60.7
Fabricators, Assemblers, Inspectors, Samplers	235	315	80	34.0
Precision Production	311	471	160	51.5
Machine Operators and Tenders, excluding Precision	472	722	250	53.0
TOTAL	9,290*	14,720*	5,430*	58.4*

*Excluding Farm Operators and Managers, and Farm Workers and Related Occupations.

Source: 1) U.S. Bureau of the Census, Census data and EEO Detailed Occupation Report.

2) Economic Consultants Northwest, Helena, Montana.

TABLE 10

NUMBER OF PERSONS EMPLOYED,
GALLATIN COUNTY, MONTANA (1980)

General Catugory*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	Projected Openings 1990
Administrative Support Occupations, Including Clerical	Secretaries	893		59	1,188	1,483
	Stenographers	0		0	0	0
	Typists	144		7	179	214
	Interviewers	36		2	46	56
	Hotel Clerks	46		4	66	86
	Transportation, Ticket and Reservation Agents	9		1	14	19
	Receptionists	65		5	90	115
	Information Clerks-NEC	8		0	8	8
	Classified Ad Clerks	9		0	9	9
	Correspondence Clerks	0		0	0	0
	Order Clerks	38		3	53	68
	Personnel Clerks	16		8	56	96
	Library Clerks	9		1	14	19
	File Clerks	36		2	46	56
	Records Clerks	21		1	26	31
	Dispatchers	2		0	2	2
	Production Coordinators	44		2	54	64
	Traffic, Shipping and Receiving Clerks	30		1	35	40
	Stock and Inventory Clerks	79		3	94	109
	Meter Readers	21		1	26	31
	Weighers, Measurers, Checkers	0		0	0	0
	Samplers	0		0	0	0
	Expediters	11		1	16	21
	Material Recording, Shipping and Distributing Clerks-NEC	0		0	0	0
	General Office Clerks	314		17	399	484
	Bank Tellers	76		5	101	126

TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	Projected Openings 1990
Administrative Support (Cont'd)	Proofreaders	9		0	9	9
	Data-Entry Keyers	45		2	55	65
	Statistical Clerks	21		1	26	31
	Teacher's Aides	76		4	96	116
	Administrative Support-NEC	43		2	53	63
	Insurance Adjusters, Examiners and Investigators	25		1	30	35
	Investigators and Adjusters Except Insurance	37		2	47	57
	Eligibility Clerks, Social Welfare	0		0	0	0
	Billing and Accounting Clerks	0		0	0	0
	Duplicating Machine Operators	33		3	48	63
	Office Machine Operators-NEC	6		1	11	16
	TOTAL	2,202	20.7	139	2,897	3,592
Financial Records Processing	Bookkeepers, Accounting, Auditing Clerks	642		40	842	1,042
	Payroll and Time Keeping Clerks	9		1	14	19
	Billing Clerks	0		0	0	0
	Cost and Rate Clerks	3		0	3	3
	Billing, Posting and Calculating Machine Operators	22		1	27	32
	TOTAL	676	6.4	42	886	1,096
Food Service	Bartenders	181		9	226	271
	Waiters and Waitresses	550		36	730	910
	Cooks, Except Short Order	467		35	642	817

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Food Service (Cont'd)	Short Order Cooks	14		1	19	24
	Food Counter, Fountain and Related	54		3	69	84
	Kitchen Workers, Food Preparers	14		1	19	24
	Waiter/Waitress Assistants	89		4	109	129
	Miscellaneous Food Preparers	346		24	466	586
	TOTAL	1,715	16.1	113	2,280	2,845
Farm Operators and Managers	Farmers, Except Horticultural	517		NA	NA	NA
	Horticultural Specialty Farmers	0		0	0	0
	Managers, Farms, Except Horticultural	152		NA	NA	NA
	Managers, Horticultural Specialty Farms	0		NA	NA	NA
	TOTAL	669	6.3	NA	NA	NA
Farm Workers and Related Occupations	Farm Workers	566		NA	NA	NA
	Nursery Workers	0		0	0	0
	Supervisors, Related Agriculture	10				
	Groundskeeper and Gardeners Except Farm	47		3	62	77
	Animal Caretakers, Except Farm	21		1	26	31
	Graders and Sorters, Agricultural Products	37				
	Inspectors, Agricultural Products	0		0	0	0
	TOTAL	681	6.4	NA	NA	NA

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Mechanics and Repairers	Auto Mechanics, Including Apprentices	212		9	257	302
	Bus, Truck, and Stationary Engine Mechanics	24		1	29	34
	Aircraft Engine Mechanics	3		0	3	3
	Small Engine Repairers	9		0	9	9
	Auto Body and Related Repairers	30		1	35	40
	Aircraft Mechanics Except Engine	0		0	0	0
	Heavy Equipment Mechanics	24		1	29	34
	Farm Equipment Mechanics	43		2	53	63
	Industrial Machinery Repairers	38		2	48	58
	Machinery Maintenance	13		1	18	23
	Electrical Repairers, Communication and Industrial Equipment	24		1	29	34
	Data Processing Equipment Repairers	8		0	4	4
	Household Appliance and Power Tool Repairers	10		0	10	10
	Telephone Line Installers and Repairers and Telephone Installers and Repairers	40		1	45	50
	Miscellaneous Electricians and Electrical Equipment Repairers	0		0	0	0
	Heating, Air Conditioning and Refrigeration Mechanics	12		0	12	12
	Camera, Watch and Musical Instrument Repairers	21		1	26	31
	Locksmiths and Safe Repairers	12		0	12	12

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Mechanics and Repairers (Cont'd)	Office Machine Repairers	0		0	0	0
	Mechanical Controls and Valve Repairers	0		0	0	0
	Elevator Installers and Repairers	0		0	0	0
	Millwrights	15		1	20	25
	Specified Mechanics and Repairers-NEC and Not Specified Mechanics and Repairers	63		2	73	83
	TOTAL	597	5.6	23	712	827
Construction Trades	Brickmasons and Stonemasons Including Apprentices	9		1	14	19
	Tile Setters, Hard and Soft	0		0	0	0
	Carpet Installers	19		0	19	19
	Carpenters and Apprentices	503		34	673	843
	Drywall Installers	40		0	40	40
	Electricians and Apprentices	121		3	136	151
	Electrical Power Installers and Repairers	11		0	11	11
	Painters, Construction, and Maintenance	55		3	70	85
	Paperhangers	14		1	19	24
	Plasterers	1		0	1	1
	Plumbers, Pipefitters, and Steamfitters, and Apprentices	33		1	36	43
	Concrete and Terrazzo Finishers	10		1	15	20
	Glaziers	7		0	7	7
	Insulation Workers	21		1	26	31

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Construction Trades (Cont'd)	Paving, Surfacing and Tamping Equipment Operators	0		0	0	0
	Roofers	14		0	14	14
	Sheetmetal Duct Installers	7		0	7	7
	Structural Metal Workers	0		0	0	0
	Drillers, Earth	20		1	25	30
	Construction Trades-NEC	71		3	86	101
	TOTAL	956	9.0	49	1,201	1,446
Construction Laborers	Construction Laborers	214		12	274	334
	TOTAL	214	2.0	12	274	334
Sales Occupations	Insurance Sales	116		5	141	166
	Real Estate Sales	228		14	298	368
	Securities and Financial Service Sales	15		1	20	25
	Advertising and Related Sales, Sales Occupations, Other Business Service Representatives, Mining, Manufacturing and Wholesale Sales Workers, Motor Vehicle and Boats, Apparel Shoes, Furniture and Home Furnishings, Radio, TV, Hi-Fi and Appliance, Hardware and Building Supplies, Parts, Other Commodities and Sales Counter Clerks, Street and Door to Door Sales	1,073		68	1,413	1,753

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	Projected Openings 1990
Sales Occupations (Cont'd)	Cashiers	450		25	575	700
	News Vendors	30		3	45	60
	TOTAL	1,912	18.0	116	2,492	3,072
Fabricators, Assemblers, Inspectors, Samplers	Welders and Cutters	87		3	102	117
	Solderers and Brazers	0		0	0	0
	Assemblers	61		2	71	81
	Hand Cutting and Trimming	0		0	0	0
	Hand Molding, Casting and Forming	12		0	12	12
	Hand Painting, Coating and Decorating	16		1	21	26
	Hand Engraving and Printing	0		0	0	0
	Hand Grinding and Polishing	0		0	0	0
	Miscellaneous Hand Working	10		0	10	10
	Production Inspectors, Checkers and Examiners	20		1	25	30
	Production Testers	0		0	0	0
	Production Samplers and Weighers	0		0	0	0
	Graders and Sorters Except Agriculture	29		1	34	39
	TOTAL	235	2.2	8	275	315
Precision Production	Tool and Die Makers and Apprentices	9		0	9	9
	Precision Assemblers, Metal	0		0	0	0
	Machinist and Apprentices	35		1	40	45
	Boilermakers	0		0	0	0
	Precision Grinders, Fillers and Tool Sharpeners	0		0	0	0

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Precision Production (Cont'd)	Patternmakers and Model Makers, Metal	0		0	0	0
	Lay-out Workers	0		0	0	0
	Precision Stones and Metals Workers	6		1	11	16
	Engravers, Metal	0		0	0	0
	Cabinet Makers and Bench Carpenters	18		1	23	28
	Sheet Metal Workers and Apprentices	20		1	25	30
	Miscellaneous Precison Metal Workers	0		0	0	0
	Patternmakers and Model Makers, Wood	0		0	0	0
	Furniture and Wood Finishers	6		0	6	6
	Miscellaneous Precison Woodworkers	0		0	0	0
	Handmolders and Shapers, Except Jewelers	0		0	0	0
	Patternmakers, Lay-Out Workers, and Cutters	0		0	0	0
	Optical Goods Workers	0		0	0	0
	Dental Lab and Medical Appliance Technicians	6		0	6	6
	Bookbinders	15		0	15	15
	Electric and Electronic Equipment Assemblers	19		1	24	29
	Miscellaneous Precision Workers-NEC	0		0	0	0
	Inspectors, Testers, and Graders	20		1	25	30

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TABLE 10 (Cont'd)

General Category	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Precision Production (Cont'd)	Adjurters and Calibrators	0		0	0	0
	Water and Sewer Treatment Operators	0		0	0	0
	Power Plant Operators	0		0	0	0
	Stationary Engines	4		0	4	4
	Miscellaneous Plant and System Operators	0		0	0	0
	Butchers and Meat Cutters	15		1	20	25
	Bakers	42		2	52	62
	Food Batchmakers	27		0	27	27
	Dressmakers	58		6	88	118
	Tailors	0		0	0	0
	Upholsterers	11		1	16	21
	Shoe Repaiers	0		0	0	0
	Apparel and Fabric Patternmakers	0		0	0	0
	TOTAL	311	2.9	16	391	471
Machine Operators and Tenders, Except Precision	Lathe and Turning Machine Set-up Operators and Apprentices	7		0	7	7
	Milling and Planing Machine Operators	0		0	0	0
	Punching and Stamping Press Machine Operators	0		0	0	0
	Rolling Machine Operators	0		0	0	0
	Drilling and Boring Machine Operators	0		0	0	0
	Grading, Abrading, Buffing, and Polishing Machine Operators	18		1	23	28
	Forging Machine Operators	0		0	0	0
	Numerical Control Machine Operators	0		0	0	0

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Machine Operators and Tenders, Except Precision (Cont'd)	Miscellaneous Metal, Plastic Stone and Glass Working Operators	0		0	0	0
	Fabricating Machine Operators-NEC	0		0	0	0
	Molding and Casting Machine Operators	7		0	7	7
	Metal Plating Machine Operators	0		0	0	0
	Heat Treating Equipment Operators	0		0	0	0
	Miscellaneous Metal and Plastic Processing	0		0	0	0
	Wood Lathe, Routing and Planing	0		0	0	0
	Sawing Machine Operators	50		2	60	70
	Shaping and Joining Machine Operators	0		0	0	0
	Nailing and Tacking Machine Operators	0		0	0	0
	Miscellaneous Woodworking Machine Operators	6		0	6	6
	Printing Machine Operators	70		3	85	100
	Photoengravers and Lithographers	0		0	0	0
	Typesetters and Compositors	8		0	8	8
	Miscellaneous Printing Machine Operators	19		1	24	29
	Winding and Twisting Machine Operators	0		0	0	0
	Knitting, Looping, Taping, and Weaving	0		0	0	0
	Textile Cutting Machine Operators	6		0	6	6

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TABLE 10 (Cont'd)

General Category*	Detailed Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	1990
Machine Operators and Tenders, Except Precision (Cont'd)	Textile Sewing Machine Operators	21		2	31	41
	Shoe Machine Operators	0		0	0	0
	Pressing Machine Operators	6		0	6	6
	Laundering and Dry Cleaning Operators	63		2	73	83
	Miscellaneous Textile, Machine Operators	0		0	0	0
	Cementing and Gluing Machine Operators	0		0	0	0
	Packaging and Filling Machine Operators	17		1	22	27
	Extruding and Forming Machine Operators	7		1	12	17
	Mixing and Blending Machine Operators	0		0	0	0
	Separating, Filtering and Clarifying	9		0	9	9
	Compressing and Compacting	0		0	0	0
	Painting and Paint Spraying Machine Operators	6		0	6	6
	Roasting and Baking Machine Operators	0		0	0	0
	Washing, Cleaning and Pickling Machine Operators	0		0	0	0
	Folding Machine Operators	0		0	0	0
	Furnace, Kiln, and Oven Operators Except Food	30		2	40	50
	Crushing and Grinding Machine Operators	14		1	19	24
	Slicing and Cutting Machine Operators	0		0	0	0

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TABLE 10 (Cont'd)

General Category*	Detailed** Category	Number Employed	Percent of Total	Average Annual Opening	Projected Openings 1985	Projected Openings 1990
Machine Operators and Tenders, Except Precision (Cont'd)	Motion Picture Projectionists	0		0	0	0
	Photo Processing Machine Operators	44		3	59	74
	Miscellaneous Machine Operators-NEC and Machine Operators Not Specified	63		4	94	124
	TOTAL	472	4.4	25	597	727
	GRAND TOTAL	10,640	100.0			

* U.S. Bureau of Census Categories
** Equal Employment Opportunity Categories and Figures
*** $\frac{\text{OES Average Annual Openings}}{\text{Current OES Employment (1980)}}$ = Average Annual Opening
**** Average Annual Opening X 5(Years) = Projected 1985
Average Annual Opening X 10(Years) = Projected 1990

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has two components which include: 1) likely changes in employment by industry, and 2) replacement of existing jobs through turnover or retirement.

The Gallatin County projections shown in Tables 9 and 10 assume that state occupational growth by industry will be comparable at the local level. In other words, state and local growth patterns will be similar. No projections are available for agricultural positions; however, it is safe to assume (see Table 2) that there will be relatively few new openings in agriculture since overall employment in this sector is declining. Nevertheless, there will be openings due to retirement and job turnover. It should be noted that Tables 9 and 10 do not include all types of occupations. Those occupations requiring a high degree of skill and education are excluded since those occupations are not relevant to this study.

Table 9 provides projections for general occupational categories, while Table 10 shows a more detailed breakdown within each general occupational grouping. For example, administrative support positions (including clerical jobs) are expected to increase in Gallatin County by 1,390 between 1980 and 1990. Within that general group (see Table 10), secretarial job openings are expected to rise by 59 per year in the State of Montana.

Within a general context, approximately 75 percent of the new occupations (relevant to secondary vocational training) are expected to be found in the service sector as opposed to the commodity sector. If the general focus of vocational training is on job placement, curriculum should be targeted to general occupations that have the highest growth potential. A procedure for curriculum targeting is provided in the recommendations section of this report.

III. METHODOLOGY

ECO, with the assistance of the OPI, selected three Gallatin County high schools (Bozeman, Belgrade, and Manhattan) for this study. Because the industrial and occupational composition within the same labor market (LMA) are similar, a criterion used in the selection process of these target schools was that they be located in the same LMA.

Information was gathered on relevant occupational classifications for 1970 and 1980 for both Gallatin County and the State of Montana. Detailed occupational categories which were consistent in terms of secondary vocational education skills were selected for the following programs:

1) Agriculture
2) Distributive Education
3) Business/Office
4) Home Economics
5) Industrial Arts
6) Trade and Industrial

An informal survey was conducted in the three target schools to gather information on students who had graduated (or left school) in school year 1982-83. The primary purpose of this analysis was to provide a beginning framework for evaluating the general performance of secondary vocational education programs. It is the author's opinion that there are funda-

mentally two different yardsticks for evaluating both individual courses and program areas. First, a course or program can be evaluated on the basis of academic excellence and contribution to an individual's quality of life in a general sense. Second, a course or program can be evaluated on the basis of whether or not the curriculum was adequate to help a student find a job. Neither criteria are mutually exclusive; in other words, vocational education clearly serves both roles. It is easier, nevertheless, to define program success in terms of job placement than the more broad based impact of education on a student's life after graduation.

In an effort to determine how many students receiving secondary vocational training went on to find employment in the same field, the following schools were surveyed in the following program areas:

School	Program
Bozeman	Distributive Education Industrial Arts Home Economics Business/Office Trade & Industrial
Belgrade	Industrial Arts Home Economics Business/Office Agriculture
Manhattan	Home Economics Business/Office Agriculture

Instructors were asked to complete a survey form (see Appendix A) to determine the type of courses former vocational education students took while in high school, their present employment/school status, and whether their present job is related to

their vocational training. The student names were provided by the OPI and, on the basis of their records, represent students who have taken at least two courses in the same program area. The combination of the three schools and five program areas resulted in a list of 102 students. Upon receiving the survey, several instructors from the three target schools (Bozeman, Belgrade, and Manhattan) remarked that the student records were either not complete or that some of the students had never attended their schools. Because the sample size is small (i.e., 102 students were involved), comparison between schools or program areas have have no statistical significance.

Tables 11 and 12 present summary results of the three school summary. Of the 102 students (see Table 11), approximately 29 percent are either employed full time or unemployed, 41 percent continued their education, and the status of 29 percent is presently unknown. It is uncertain whether those students who continued their education did so within the same topic area as their vocational training. Of those students who are presently employed full time, over half are employed in the same field as their vocational educational training. Table 12 provides a more detailed breakdown of the survey results by school and program.

In 1983, ECO Northwest, under contract to the OPI, conducted a statewide follow-up survey for both secondary and and post secondary vocational education programs. The survey instrument is provided in Appendix B and the results of this

TABLE 11

EMPLOYMENT/SCHOOL
STATUS OF FORMER VOCATIONAL EDUCATION
STUDENTS OF BOZEMAN, BELGRADE, AND
MANHATTAN HIGH SCHOOLS

Students' Status	Number of Students	Percent
Employed but not in field	12	11.8
Employed in field	16	15.7
Unemployed	2	2.0
Attending school	28	27.5
Attending school/part-time work	14	13.7
Status unknown	30	29.4
TOTAL	102	100.0

Source: Based on survey of 1982-83 students that was administered to Bozeman, Belgrade, and Manhattan High Schools.

TABLE 12

STATUS BY PROGRAM AREA OF 1982-83 VOCATIONAL EDUCATION STUDENTS - (BOZEMAN, BELGRADE, AND MANHATTAN HIGH SCHOOLS)

School	Program	Percent Employed	Percent Employed in Related Fields Including Partime	Percent Currently Attending School
Bozeman	Distributive Education	100.0	100.0	66.7
	Industrial Arts	0.0	0.0	100.0
	Home Economics	100.0	50.0	0.0
	Business/Office	52.9	23.5	82.4
	Trade & Industrial	62.5	37.5	68.8
Belgrade	Industrial Arts	25.0	25.0	50.0
	Home Economics	33.3	0.0	44.4
	Business/Office	57.1	28.6	42.9
	Agriculture	100.0	100.0	0.0
Manhattan	Home Economics	0.0	0.0	66.7
	Business Office	0.0	0.0	100.0
	Agriculture	100.0	50.0	0.0
	TOTAL	55.4	29.7	56.8

Source: Based on survey of 1982-83 students that was administered to Bozeman, Belgrade, and Manhattan High Schools.

TABLE 13

RESULTS OF FOLLOW-UP SURVEY
OF VOCATIONAL EDUCATION STUDENTS
(SECONDARY, 1981-82)

Population Size: 5720
Sample Size: 98

1.	Sex:	M 74 (75.5%)	Completer	66	(67.3%)
		F 24 (24.5%)	Leaver	32	(32.7%)
2.	Educational Status:		Attending	53	(54.1%)
			Not Attending	45	(45.9%)
3.	Employment Status:		Employed	47	(48.0%)
			Military	2	(2.0%
			Unemployed	10	(10.2%)
			Not in Labor Force	39	(39.8%)
4.	Job Related to Training (Total = 47):		Yes	21	(44.7%)
			No	26	(55.3%)

5. Employer Follow-up (15):

		Very Good	Good	Average	Poor	Very Poor
a)	Technical Knowledge:	5	8	2		
	Work Attitude:	10	5			
	Work Quality:	6	8	1		
b)	Overall Rating:	6	7	2		

c)	Relative Preparation:	No Basis	3
		Better Prepared	10
		About the Same	2
		Less Prepared	

Source: ECO Northwest, Ltd.

TABLE 14

RESULTS OF FOLLOW-UP SURVEY
OF VOCATIONAL EDUCATION STUDENTS
(POST SECONDARY, 1981-82)

Population Size: 3542
Sample Size: 98

1.	Sex:	M	52	(53.1%)	Completer	73 (74.5%)
		F	46	(46.9%)	Leaver	25 (25.5%)
2.	Educational Status:				Attending	18 (18.4%)
					Not Attending	80 (81.6%)
3.	Employment Status:				Employed	79 (80.6%)
					Military	0
					Unemployed	10 (10.2%)
					Not in Labor Force	9 (9.2%)
4.	Job Related to Training (Total = 79):				Yes	47 (59.5%)
					No	32 (40.5%)

5. Employer Follow-up (37):

		Very Good	Good	Average	Poor	Very Poor
a)	Technical Knowledge:	13	19	4	1	
	Work Attitude:	24	10	2	1	
	Work Quality:	16	17	3	1	
b)	Overall Rating:	18	14	4	1	

c)	Relative Preparation:	No Basis 12
		Better Prepared 19
		About the Same 5
		Less Prepared 1

Source: ECO Northwest, Ltd.

follow-up survey are shown in Tables 13 and 14. The results of this study are presented here for comparison with the Gallatin County survey. Of those students in the 1983 study who had a known status:

- Fifty-eight percent went on to school versus 53 percent statewide. Of the statewide post secondary students, 18 percent furthered their education.

- Sixty-one percent of the Gallatin County students who are now in the labor force versus 60 percent for the state secondary students, and 91 percent for post secondary students.

- Fifty-seven percent of the local students who are employed full time are employed in jobs related to their training. Forty-five percent of the state secondary students who are employed, either full or part time, are employed in jobs related to their vocational field. Approximately 60 percent of the post secondary students are employed in their fields.

It was found that proportionally more local students continue their education than their statewide counterparts. Approximately the same proportion of students (statewide and local) are presently in the labor force. Slightly more local students appear to find jobs in their vocational field than the state norm. However, as previously mentioned, these sample sizes are too small to have normal statistical significance. The same problem exists with regard to Table 15 which shows the disposition of students by program area. With the exception of home economics, those students who are currently employed full time appear to be as likely to find a job in their field regardless of what program within which they were enrolled.

TABLE 15

DISPOSITION OF STUDENTS
(BOZEMAN, BELGRADE, MANHATTAN)

Program	Number of Students	Employed but Not In Field (Full Time)	Employed in Field (Full Time)	Unemployed	Attending School	Status Known
Distributive Education	5	0	1	0	2	2
Business/ Office	35	4	3	0	20	8
Industrial Arts	8	1	1	0	3	3
Agriculture	10	4	5	0	0	1
Home Economics	22	3	1	2	6	10
Trade and Industrial	22	0	5	0	11	6
TOTAL	102	12	16	2	42	30

Inherently, at least within the local areas, those programs that are commodity oriented (industrial arts, agriculture, and trade/industrial) have a placement rate equal to the faster growing (employment) service related program areas (distributive education and business/office).

IV. RECOMMENDATIONS

A. Additional Data Needs

More data collection may be necessary to establish a link between employment growth by sector, occupational job openings resulting from the employment growth, and placement rates by vocational education program areas. As indicated earlier, if the goal of vocational education planning is to maximize the chance of a student finding a meaningful job, then it is important to help students target those areas where their placement potential is highest.

The results of the local student survey, however, indicated that the probability of placement in the same field as their training did not follow any discernable pattern. In other words, those students enrolled in slow growth occupations (e.g., agriculture, trade, and industrial) were as likely to find related jobs as those students in faster growth sectors (e.g., retail and business/office). The contractor's original impression was that the local student survey was too unreliable because the sample was too small to reveal such a link. Unfortunately, for analytical purposes, the OPI does not presently gather placement data for the various vocational education program areas.

One of the reasons placement information is not gathered is the cost associated with collecting such data. For example, if the OPI were to collect placement rates for five general programs (agriculture, distributive education,

home economics, trades, and business/office), it would be necessary to survey over 4,000 students annually to provide statistically reliable data by program area. This may not be practical within existing budgetary constraints.

A recent Colorado study investigated placement rates by program area. The summary results of this study are provided in Figure 1 and Table 16. There is a wide variation in placement rates in the same field which is largely due to the relative number of students (by program area) who continue their education. This value ranged from 28 percent in trade and industrial to 50 percent in the technical program areas. Table 16 attempts to adjust for this variation in relative rates of continuing education by focusing only on the percent of the labor force employed in a related field. When ranked in this manner, a general pattern of placement begins to emerge. Specifically, placement rates are higher in the faster growing service related occupations than in the more traditional commodity or production oriented occupations. It may be that a similar pattern would be seen in Montana if data were available.

B. Continuation of Student Tracking

The relative success of a local vocational education program should be monitored on an annual basis. In order to

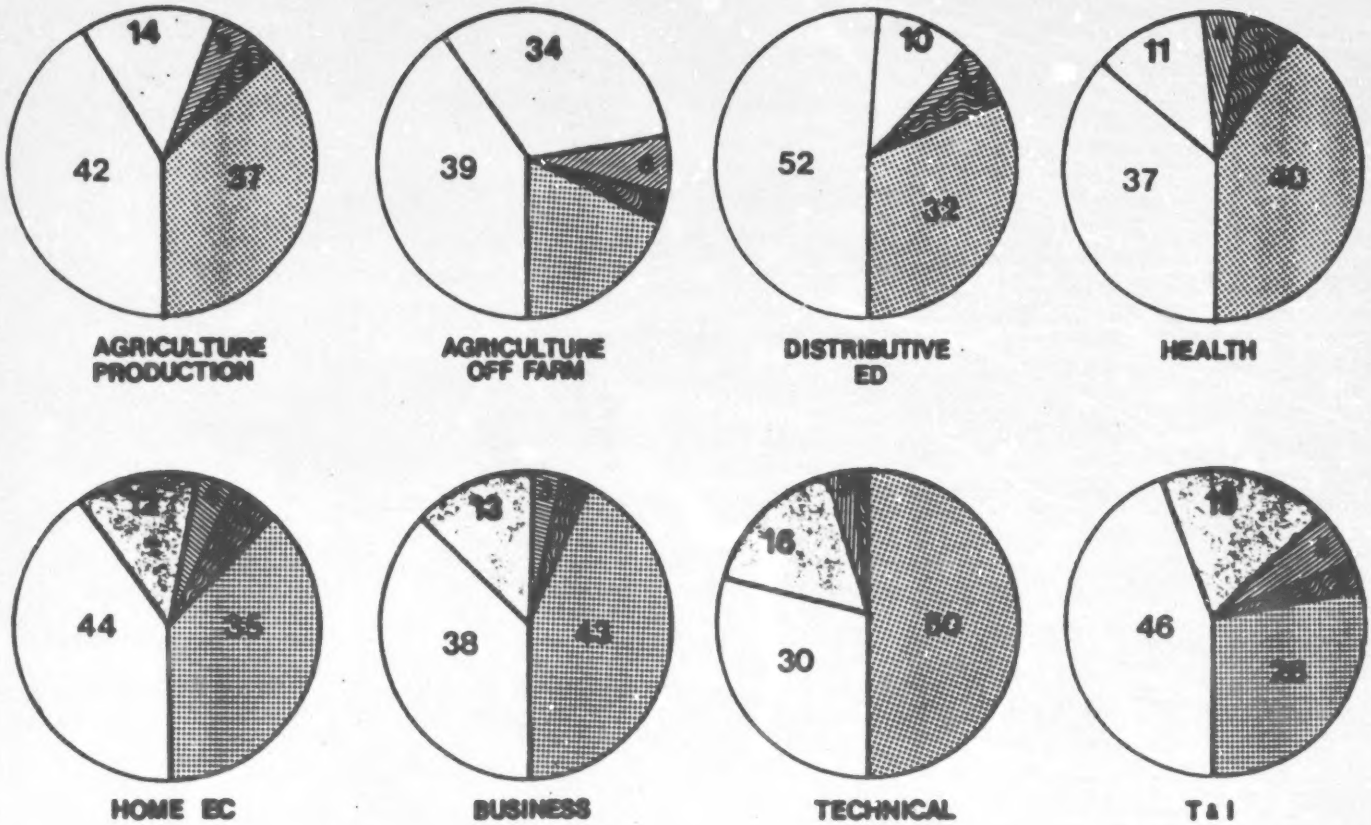

FIGURE 1. COLORADO PLACEMENT RATES BY PROGRAM AREA.

PERCENTAGE OF FISCAL YEAR 1981 COMPLETERS BY PLACEMENT STATUS BY SERVICE AREA AT THE SECONDARY LEVEL

Source: Placement & Follow-up Report from Local School Districts

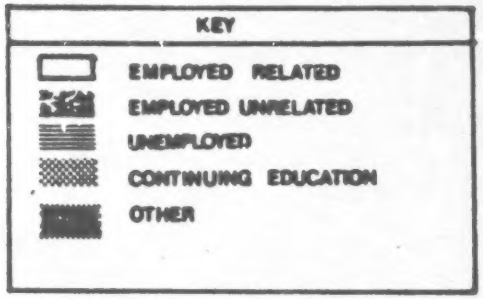

TABLE 16

RELATIVE PLACEMENT RATES

Program	Percent of Labor Force Employed in Related Area
Distributive Education	80
Home Economics	73
Health	71
Business	70
Agriculture Production	69
Trade and Industrial	65
Technical	61
Agriculture Production (off farm)	49

Source: Colorado Office of Public Instruction, Colorado Placement Followup Report, 1982.

accomplish this goal, each school system should conduct an an annual survey of all vocational education students completing more than four courses within a specific program area. Neither the OPI completer/leaver survey or the survey instrument utilized in this study (see Appendix A and Appendix B) would be adequate to collect the type of information necessary to determine if students are finding employment that is related to their vocational education training. Although the number of students is small, the information collected should assist in providing both counselors and instructors with a more systematic method by which to determine the employment status of their students after graduation.

C. Career Placement Information

Since it is the students themselves who must ultimately make the decision as to what courses to take, several of the tables included in this report (e.g., employment and occupational growth) may help students select program areas that are in demand. Gallatin County projections by occupation (see Table 9) should be particularly helpful in making this career decision.

APPENDIX A

STUDENT STATUS SURVEY FORM

VOCATIONAL EDUCATION PROGRAM_____ SCHOOL YEAR_____ SCHOOL_____

Student's Name	Courses	Employed	Employed in Related Field	Currently Attending School	Unemployed	Status Unknown

APPENDIX B

COMPLETER/LEAVER SURVEY FORM

Form Approved
FEDAC #R139
Approval expires
June 30, 1984

COMPLETER/LEAVER FOLLOW-UP FORM

NOTE: This report is authorized by law (20 USC 2312 and 20 USC 2391). While you are not required to respond to this survey, your cooperation is needed to insure that the results of this effort are comprehensive, reliable, and timely.

1. What is your current educational status? (Check one.)
   _____ Currently attending school
   _____ Not currently attending school

2. What is your current employment status? (Check one.)
   _____ Employed (Includes all employment, even if below your qualifications; does not include full-time military service.)
   _____ Employed (Full-time military service.)
   _____ Unemployed (Not employed, but actively seeking employment.)
   _____ Not in the labor force (Not employed and not seeking employment because of choice, illness, full-time student status, retirement, pregnancy, or other such reason.)

NOTE: If you are currently employed, please answer the remaining questions.
Otherwise, skip the remaining items.

3. Please provide the following information on your present job:
   Name of Company or Firm (If self-employed, please write self.)

   _____

   Company or Firm Mailing Address

   _____

   City _____ State _____ Zip Code _____

   Your Immediate Supervisor
   Last Name _____ First Name _____ M. I. _____

   PRESENT JOB INFORMATION:

   Job Title _____

   Job Duties _____

   _____

4. Is this job related to your field of vocational training?
   _____ Yes, it is directly or closely related.
   _____ No, it is only remotely related or is not related at all.

5. What is your current salary before deductions? (Do not add in overtime.)
   $_____ per_____

6. The salary in the preceding item is based on how many hours per week employment?
   _____ hours per week

Thank you very much for your cooperation. Please return this form in the enclosed envelope.

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This report is authorized by PL 94-482 (20 USC 2391)

APPENDIX B

NAME _____

EMPLOYER # _____

PROGRAM TITLE _____

Form Approved
FEDAC #R139
Approval expires
June 30, 1984

EMPLOYER FOLLOW-UP FORM

NOTE: This report is authorized by law (20 USC 2312 and 20 USC 2391). While you are not required to respond to this survey, your cooperation is needed to insure that the results of this effort are comprehensive, reliable, and timely. No student identifiers will be forwarded to the Federal government.

1. VOCATIONAL TRAINING EVALUATION

Please rate the vocational training received by the individual in the following areas:

	Very Good	Good	Average	Poor	Very Poor
a. Technical knowledge	☐	☐	☐	☐	☐
b. Work attitude	☐	☐	☐	☐	☐
c. Work quality	☐	☐	☐	☐	☐
	(5)	(4)	(3)	(2)	(1)

2. OVERALL RATING

What is your *overall* rating of the vocational training received by this individual as it relates to the requirements of his or her job?

Very Good	Good	Average	Poor	Very Poor
☐	☐	☐	☐	☐
(5)	(4)	(3)	(2)	(1)

3. RELATIVE PREPARATION

As a result of this person's vocational training, how would you rate his or her preparation in relation to other employees in his or her work group who did not receive the same training?

☐ No basis for comparison
(5) ☐ Individual is better prepared
(3) ☐ Both are about the same
(1) ☐ Individual is less prepared

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This report is authorized by PL 94-482 (20 USC 2391).